Community Information Group Draft Meeting Minutes
Motorola 52nd St. Superfund Site
November 10, 2011, 6:30 to 9:00 pm
Bioscience High School, Phoenix, AZ

Project Team and Regulator Attendees:

United States Environmental Protection Agency (EPA): Janet Rosati, Leana Rosetti, Gerry Hiatt

Shaw Environmental, Inc. (Shaw): Doug Hulmes

Arizona Department of Environmental Quality (ADEQ): Harry Hendler, Brian Stonebrink, Joellen Meitl, Felicia Calderon, Travis Barnum, Andre Chiaradia

Technical Assistance Grant (TAG) Technical Advisor: Richard Rushforth

CIG Members:
Mary Moore, Resident, TAG recipient, Lindon Park Neighborhood Assn
Martha Breitenbach, Resident
Doug Tucker, Resident
Les Holland, Resident
Dr. Ruth Ann Marston, Resident and School Board President
Rene Chase-Dufault, Resident, Lindon Park Neighborhood Assn

Facilitator: Dr. Marty Rozelle

Additional attendees:
Arjun Venkatesan, ASU
Barbara Murphy, Clear Creek Associates
Braden Kay, ASU
Jenn McCall, Freescale
Loren Lund, CH2MHill
Manfred Plaschke, Conestoga Rivers & Associates
Robert Livermore, ERM
Rolf Halden, PhD, PE, ASU
Sarah T. Wilkinson, PhD, U of A
Shoshana Krueger, BioScience High School
Steve Brittle, Don't Waste AZ
Tasha Lewis, CH2MHill
Tom Suriano, Clear Creek Associates
Troy Kennedy, Honeywell
Quent Augspurger, resident
Nolya Augsprurger, resident
Approximately 20 Bioscience High School students, a few parents of students and one teacher

The following acronyms may be used throughout this document:

ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
CIG	Community Information Group
CoC	Contaminant of Concern
DCE	Dichloroethylene
EPA	Environmental Protection Agency
HHRA	Human Health Risk Assessment
RI/FS	Remedial Investigation/Feasibility Study

OU	Operable Unit
PCE	Tetrachloroethylene
TCE	Trichloroethylene
ug/l	Microgram/liter
VC	Vinyl Chloride
VOC	Volatile Organic Compound

A Community Information Group (CIG) meeting was held at Bioscience High School located at 512 E. Pierce Street in Phoenix, Arizona from approximately 6:30 pm to 9:00 pm on November 10, 2011. The primary purpose of the meeting was to update the public on the current status and remedial progress at the Motorola 52nd St. Superfund Site, present data that was not presented in previous meetings due to time constraints, provide answers to questions from previous meetings; and provide a forum for interaction between stakeholders, regulators and the public.

This meeting summary and the PowerPoint presentations made at this CIG meeting are posted on the two project websites:
www.epa.gov/region09/motorola52ndst
http://www.azdeq.gov/environ/waste/sps/phxsites.html#mot52a

6:30 pm: Ms. Rosetti began the meeting by introducing herself and asking each member of the audience to do the same. After these introductions were completed, Ms. Rosetti introduced Dr. Marty Rozelle, the meeting's facilitator. Ms. Rosetti explained that she requested a professional facilitator to assist with accomplishing the meeting's goals. Dr. Rozelle briefly summarized her professional history and knowledge of the Site. She explained she implemented the community relations program for this site in the 1980's, during the RI/FS period. ADHS (and later ADEQ) and EPA had review responsibility for the program. Mr. Brittle asked that Dr. Rozelle disclose she also worked for Dames & Moore, a former consultant to Motorola, which she did.

Dr. Rozelle spoke with five of the seven CIG members plus the Technical Advisor prior to the meting. The purpose was to introduce herself and learn about their experience with the CIG and the site. She summarized the following four main concerns/issues:

- Among those interviewed there was no common understanding of the CIG's purpose, its roles and responsibilities. She received five different answers as to the purpose of the CIG.
- Meeting agendas are overbooked, thus causing participants to feel rushed with not enough time for EPA or consultants to give thorough responses to questions/concerns. However no one wanted to meet for longer than two hours at a time.
- With quarterly meetings, an agenda item can be postponed to a future meeting. By the time it is discussed it may not be as relevant or the opportunity for timely comment has passed.

Dr. Rozelle said that there was a lot of mistrust, personal pain and history with this site, and that it could not be resolved in one meeting. However, a more productive process is possible, and she suggested that a meeting with the CIG members and the agencies could be held just to discuss how the meetings work and how the meeting process could be improved.

She described some ground rules: be friendly, stay on topic and it is okay for questions during presentations. Ms. Moore asked if it was Dr. Rozelle's intention to have the audience wait until the end of the meeting to ask questions. Dr. Rozelle asked the CIG members what they prefer. It was agreed that the CIG members ask questions first and then the audience after each presentation if there is time. Dr. Rozelle indicated the next agenda item was answering questions raised in the previous meeting, and introduced Brian Stonebrink of ADEQ.

Answers to questions from previous meetings regarding OU1 Effectiveness Report – Brian Stonebrink, ADEQ (6:45 pm)

Mr. Stonebrink started his presentation by explaining he is filling in for Wendy Flood as Project Manager for OU1. He presented the question of what is being done to identify the source of unknown influx of PCE, discussed in the OU1 Effectiveness Report; and why are DCE concentrations higher in the effluent than the influent at the treatment

plant. He stressed that the DCE effluent concentrations are below regulatory standards, and explained the greater affinity of carbon to TCE than DCE. Dr. Marston, Ms. Moore and Ms. Breitenbach said they do not understand.

Ms. Rosetti provided an analogy to aid in the understanding of the different affinities of TCE and DCE to the carbon.

CIG members still did not fully understand how there could be more DCE in effluent than influent, and asked if Mr. Rushforth could explain it to them. He indicated he would like to read the full report first.

Ms. Moore indicated the DCE had to be coming from somewhere—how could the amount of DCE coming out be more than what was coming in? Where is it coming from?

Mr. Stonebrink indicated one of the theories in the technical papers, which he offered to share after the meeting, is that it has something to do with temperature gradient. Mr. Harry Hendler, ADEQ Section Chief of the Superfund Division,stepped up and explained that carbon granules themselves have TCE and DCE in them that have bonded to the carbon over a period of time. The carbon has more affinity to TCE than DCE, and when a new batch of TCE enters it displaces the already attached DCE molecule, which may have bonded to the carbon in prior months, so it would appear as though more DCE was coming out than coming in for a given month. He asked if that made sense. Ms. Moore indicated yes it does, and then asked if they were cycling the carbon properly; thinking there must be a way to not create more DCE. Mr. Hendler reiterated that the discharge is meeting regulatory requirements. Ms. Breitenbach asked why they don't put in an extra set of carbon vessels to capture the extra DCE. Mr. Hendler briefly explained the physical layout of the carbon vessels and that they can only enforce up to regulatory standards. Mr. Brittle stated they could do better, but will not.

Mr. Stonebrink indicated it's a fairly common phenomenon to have higher DCE concentrations in effluent than influent, and the concentrations being released are very low. Mr. Hendler explained there are industrial facilities that ADEQ permits, that have allowable emission rates. Ms. Moore indicated they should be trying to emit as little as possible, because Motorola emitted previously during manufacturing under a permit; and that they should not be allowed to transfer contaminates from groundwater to air.

Ms. Rosetti indicated the primary question is whether regulators even have the authority to enforce below the standard for DCE. Mr. Hendler and others indicated that they do not. Mr. Hendler further indicated the media of concern is groundwater, and they are using the best available technology to treat it.

Ms. Moore expressed that there appeared to be no logical pattern for carbon changeouts, and inquired about what triggers the carbon changeouts. Mr. Stonebrink could not answer that question, but will research and have an answer at the next meeting. Dr. Rozelle indicated that the question should be recorded for next time. Ms. Breitenbach indicated this is not the first time this question has come up.

Mr. Stonebrink moved on to the third question left over from the previous meeting: Are high concentrations of TCE masking vinyl chloride (VC) due to dilutions. He explained the dilution and lab calibration processes, and the lab's method of reporting. He stated he talked to ADEQ's internal lab expert, and she indicated that 8260 is the best method and she had no suggestions to improve. Ms. Moore voiced concerned about the dilution and the desire to know the actual VC concentrations. Ms. Rosetti and Mr. Stonebrink explained that there were only a few samples that were diluted, and the rest either showed non-detect or very low concentrations of VC.

Mr. Hendler explained the limitations of the laboratory equipment. Ms. Moore indicated it is important to know VC concentrations; Mr. Hendler agreed and explained that upgradient wells are providing undiluted results. He reiterated that some samples must be quantified via dilutions due to laboratory equipment limitations; but expressed that the data was accurate, precise and legally defensible. Ms. Moore requested a table that indicated which samples were estimates and that there should be another, better method, which could be used on a limited basis. Mr. Hendler indicated that the methods currently being used are very accurate and explained the quality control and certification processes that labs must go through. Ms. Moore was not convinced the data was of high enough quality. Mr. Hendler reiterated lab instrument limitations and discussed calibration ranges. Ms. Breitenbach asked why an instrument could not be calibrated for a specific analyte. Mr. Hendler essentially explained that lab instruments will be damaged regardless of which analyte is too high for a calibration range. A citizen asked if Mr. Hendler was saying that any sample that is diluted would not be valid data. Mr. Hendler indicated that the lab knows the dilution

factor, so therefore ADEQ believes the data is valid. Mr. Hendler explained data validation. Mr. Holland attempted to sum up the answer to question 3; the answer is: no, the dilution is not affecting the data. Mr. Stonebrink indicated that ADEQ agrees that some VC in a small number of samples may be masked due to required dilutions, but not in the majority of samples. He reiterated that it's important to note that the water is being treated to the appropriate standard. Mr. Hendler explained some of the technical aspects of mass spectrometry and quantification methods, which was asked by Mr. Tucker.

Ms. Moore asked about an example study that could extract specific analytes and not require dilution. Mr. Hendler reiterated that samples will have to be diluted if concentrations are too high of any analyte. He explained performance evaluation samples. Dr. Rozelle asked if there was a specific study. Mr. Hendler indicated the most similar study would be an analysis of performance evaluation samples. Ms. Breitenbach asked if ADEQ were the ones submitting the samples. Mr. Hendler explained ADEQ's role as the regulators. Ms. Breitenbach requested that Mr. Hendler bring the group such a study (analysis of performance evaluation samples). He indicated he would make a request for a performance evaluation study that has been completed in the past.

OU2 Effectiveness Report– Brian Stonebrink, ADEQ (7:12 pm)

Mr. Stonebrink gave a presentation on the OU2 Effectiveness report and explained that the purpose of the effectiveness report is to compare the plume levels to the Baseline 2001 and 2006 conditions, show containment of the north-south width and depth of the plume at I-10 and 20th Street and reduce volatile organic compounds (VOCs) concentrations in groundwater. Mr. Stonebrink stated that 9.98 Billion gallons of water have been treated since start-up in 2001 removing an estimated total over 12,480 pounds of VOC's removed and showed a chart of progress from the report.

Mr. Holland asked about the leveling off of the removal rate: what it was in the beginning and what it is now, and are these numbers in the report. Mr. Stonebrink indicated yes, these numbers are from the report, and summarized incoming TCE concentrations and pounds removed per month in the beginning and currently, which indicated a gradual decline of both.

Ms. Breitenbach and Ms. Moore indicated the purple line at the bottom of the chart does not display any trends that could be seen; and indicated the effectiveness report has many charts that are similarly hard to read. Ms. Meitl explained that the purple line was monthly pounds removed. Ms. Moore was troubled that the data could not be discerned from the chart. Ms. Meitl and Mr. Holland explained that the purple line on the bottom of the chart shows that the pounds removed per month are similar. Mr. Holland suggested that a separate chart showing only the pounds removed per month be displayed. Ms. Meitl indicated such charts are usually in quarterly reports. Ms. Moore indicated there are too many reports. Ms. Rosetti indicated that next time an Effectiveness Report is discussed, the kind of chart being requested could be shown; and that was great input, but it is difficult for the regulatory team to know what the audience wants ahead of time. She added that the Technical Advisor can also be asked to create such a chart for the community.

Dr. Marston asked when the concentrations will be low enough to cease treatment. Mr. Stonebrink indicated it's very difficult to predict that.

Mr. Brittle stated the TCE standard of 5 ug/l is likely to drop to 1 ug/l, and it could take a couple of hundred years to remediate to that concentration. Mr. Stonebrink indicated he understood and that is something they will consider when they look at new treatment technologies.

Ms. Moore reiterated the issue regarding data being spread out in too many reports. Dr. Rozelle indicated that a separate chart will be constructed for the next meeting.

Ms. Moore asked about TCE in bedrock. Mr. Stonebrink explained that the Effectiveness Report just evaluates performance of the treatment system in containing the plume, and the TCE in bedrock would be something to consider when looking at the overall remedy. Ms. Moore asked if the map shows what is contained for OU2. Mr. Stonebrink indicated yes, the map generally shows the capture zone in relation to a concentration of 5 ug/l of TCE. Ms. Moore asked several questions about the southern boundary. Ms. Meitl indicated that the map was just showing

the capture zone. Mr. Stonebrink indicated he would look into available data in the southern area that concerned Ms. Moore.

Mr. Stonebrink continued his presentation, explaining the gradients and estimated capture zone. Ms. Breitenbach asked several questions regarding flow dynamics, which Mr. Stonebrink answered.

Ms. Moore indicated it would be nice to have some discussion regarding extraction near bedrock in OU2.

Mr. Tucker asked about A&B subunits in relation to well screen. Mr. Stonebrink provided depths of penetration into each subunit. Mr. Manfred Plaschke, engineering contractor for the OU2 Treatment Facility, provided specific well screen depths.

7:35 pm Dr. Rozelle announced a time check and indicated they should be at the Honeywell Risk Assessment presentation; she asked the CIG if they wanted to proceed with Mr. Stonebrink's presentation. A CIG member indicated they need to look at doing something different because there is never enough time to answer everyone's question. Dr. Rozelle suggested Mr. Stonebrink continue with his presentation and perhaps questions would be answered in the slides to come.

Mr. Stonebrink continued with his presentation showing historical and present TCE groundwater concentrations. Ms. Moore asked a question about baseline data; Mr. Plaschke indicated the baseline study was conducted in May through August 2001; and the startup of the treatment system was in November 2001.

Dr. Marston asked about flow around bedrock; she indicated computer models from previous years would be helpful to explain flow around and near bedrock. Ms. Breitenbach asked about specifics of groundwater flow around bedrock. Mr. Stonebrink and Dr. Marston explained using an analogy of a vacuum cleaner being forced to go around a chair leg.

Mr. Stonebrink presented conclusions of the presentation. Ms. Breitenbach asked about the reduction of groundwater sampling for boron from quarterly to semi-annual. Mr. Stonebrink indicated they did six rounds of quarterly sampling for boron at first and, based on data review, were comfortable reducing to semi-annual sampling.

Review of Honeywell Risk Assessment – Richard Rushforth, CIG Technical Advisor (7:48 pm)

Mr. Rushforth's main points:

- The understanding of TCE's risk to humans has changed since the risk assessment was conducted; and the assessment should be modified to account for the findings published in the 2011 Health Toxicity Study.
- The TCE inhalation risk factor in Johnson and Ettinger's study is a factor of 2 lower than the 2011 Study Health Toxicity Study.
- A five-year review may be too long of a time period to do risk assessment to human health.
- Exposure duration of one year for a construction worker may be too short.

Mr. Stonebrink explained that the health assessment was conducted only on the Honeywell facility. Mr. Rushforth indicated the TAG would like to see the above suggestions applied throughout the M52 site.

Mr. Tucker voiced concern that construction workers in the M52 site are not informed of potential health hazards while doing subsurface work.

Ms. Moore felt strongly that an 8.5 to 12 year period of health assessment is an appropriate timeframe. Ms. Breitenbach indicated they are not comfortable with a one-year exposure estimate.

Mr. Rushforth resumed:

- The reporting limit for 1,4-dioxane is too high; the detection limit should be at least as low as the screening level. Perhaps 1,4-dioxane should not be removed from the contaminate of concern (CoC) list at this time, due to the above.
- Would like a uniform process for removal of analytes from CoC list.
- Would like a separate study and uniform process to assess off-site exposure risk.

Mr. Brittle indicated that off gassing from the TCE groundwater plume is likely contributing to ambient TCE concentrations and asked if the Honeywell assessment included this pathway. Mr. Rushforth indicated he could not answer that. Mr. Brittle indicated it's long overdue that a risk assessment addresses this pathway.

Mr. Tucker asked, how does off-gassing from groundwater affect metro Phoenix ambient air quality?

Dr. Hiatt indicated that the Joint Air Toxics Assessment Program study did not identify any TCE sources; the purpose of his presentation at the last meeting was to identify the ambient air concentrations. He indicated that it was likely that high concentration areas were coming from a point source (facility that is emitting the TCE).

Mr. Brittle indicated he thought there were no permitted point sources; and was convinced the TCE groundwater plume was a source of TCE in ambient air. Ms. Breitenbach and Mr. Brittle discussed jurisdictions between Maricopa County and EPA in regards to air quality regulation.

Mr. Holland complimented Mr. Rushforth's report for its understandability.

Ms. Breitenbach voiced her concern over the harmfulness of vinyl chloride, and was part of her reason for being on the committee: to try and catch items that may be overlooked.

Mr. Brittle suggested using permanganate injection at M52 as they have been doing at a Superfund site in Tucson and/or considering other emerging remedial technologies. He voiced his opinion that based on his review of OU1 and OU2 effectiveness, they are both dismal failures.

Ms. Rosetti indicated they could talk about alternative remedial technologies and why they may or may not work at M52 at a future meeting. Mr. Hendler explained there is a big difference in the Tucson site and M52: plume concentrations in Tucson are way lower and the hydrogeology is very different. He stressed that we have to make sure we do not make the contamination worse than it already is.

Ms. Breitenbach wanted an explanation as to why the bedrock could not be cleaned up. Mr. Hendler indicated we could make it worse, if we use unproven technology for this particular hydrogeology; right now the contamination is currently contained in the bedrock, and new technology could make it worse by spreading out the contamination.

Ms. Breitenbach asked if pumping and treating spreads out contamination. Ms. Rosetti and Mr. Hendler explained how pump and treat contains contamination.

Ms. Moore asked about how 'stable' is used in relation to bedrock, and expressed her concern over the soil gas concentrations. Mr. Hendler explained the transport mechanism is primarily groundwater and he was not privy to whether or not bedrock was contributing to soil gas contamination.

Citizen, Quent Augspurger asked about disclosure of contamination in relation to real estate transactions; this information was not disclosed to him when he bought his house in OU1 six years ago. Mr. Tucker indicated such information is supposed to be disclosed at the time of sale. Dr. Rozelle suggested the matter be discussed with the Arizona Department of Real Estate.

Mr. Augspurger asked where the data comes from for health risk assessment. Ms. Rosetti explained the health assessment process. Dr. Hiatt added that risk assessments are intended to show potential exposure routes based on site specific data; and does not derive cancer or mortality rates, which is data maintained by public health agencies.

8:30 pm Dr. Rozelle asked for input regarding agenda items for the next meeting; the five-year review is one item. Ms. Moore said that she believed the meeting should have this as the only item, so that there would be sufficient time to cover it.

Ms. Breitenbach indicated she would like a discussion regarding the downgradient edge of the plume. Ms. Rosetti summarized the question to be: why are there two separate sites and what is the mechanism for determining them. Mr. Tucker suggested a smaller scale map which shows a bigger overview of the area would be helpful. Ms. Moore indicated she wanted a question answered regarding a change in the southern portion of the plume in OU2.

Dr. Rozelle, with input from the CIG members, summarized a primary question for the next meeting: What other sites are contributing to M52 and to what extent; and vice versa. CIG members indicated they will ask Mr. Rushforth to help them develop the specific questions they would like answered.

The group discussed some of the frustrations for all involved regarding the meetings. Dr. Rozelle suggested that a separate meeting with only the CIG members and agency staff team to focus on process, purpose, and developing ways to improve the productivity of meetings and reduce frustration. Several CIG members felt that this was not necessary, for they were satisfied with the meetings, and they felt that with the new technical advisor, things were now starting to function better. Ms.

Mr. Holland indicated that it is frustrating to ask a question several times and not get an answer; and if there is no answer then that should be stated. Mr. Tucker indicated that information is spread out in too many different sources/reports. Mr. Holland indicated the formats for OU1 and OU2 reports should be the same. The CIG agreed that Mr. Rushforth can assist them in coming up with specific questions and getting the most out of future meetings.

Ms. Rosetti indicated that resources to conduct the meetings are finite and due to the vast amount of material to cover, some of it will have to be addressed outside of the meetings.

Mr. Tucker voiced his appreciation of the efforts that the regulatory agencies have put forth to conduct these meetings. Mr. Holland stated that things had improved, and that more information was now being shared with the public.

CIG members again raised the issue of Dr. Rozelle potentially being biased due to her former employment with Dames and Moore. Dr. Rozelle explained that she was a community relations coordinator for Dames and Moore. Ms. Breitenbach stated her mistrust of anyone who had worked for Motorola and the bias they might have. Dr. Rozelle clarified that Dames and Moore is an engineering consulting firm, and that she was not actually employed by Motorola; rather, Motorola was a client of Dames and Moore. Ms. Rosetti explained how these firms are contracted to do work by both government agencies and Responsible Parties, and they must do work that the government agencies consider to be competent and objective. All of Dames and Moore's work for the M52 site had to be approved by ADHS and EPA.

Ms. Rosetti stated that she felt that DR. Rozelle had provided valuable input to EPA and ADEQ during the practice run of the meeting earlier in the day, stating where things were unclear or not useful for the community and how they could be improved. Ms. Rosetti observed Dr. Rozelle being objective and trying to improve the process for everyone involved, and that there is value in keeping a consistent facilitator that had already gained some understanding of the issues involved.

Ms. Rosetti asked the CIG if they wanted another facilitator, and said that if so, they would need to choose one soon as it takes time to contract a facilitator through EPA. Six members conducted an informal thumbs up/thumbs down: three wanted to keep Dr. Rozelle, three did not; the members decided that they would retain Dr. Rozelle for the next meeting since not all of the members were present, and they would reevaluate after the next meeting.

9:00 pm Meeting adjourned